



## Potential ESPAM Improvements

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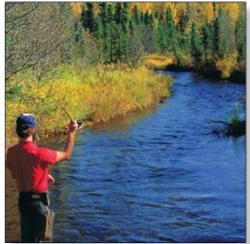
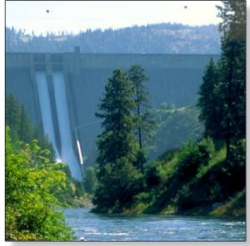
Allan Wylie

April 3, 2013



# Potential ESPAM Improvements

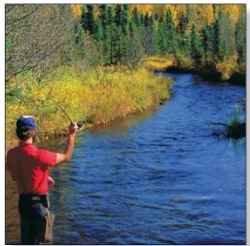
- Un-prioritized list
  - Change entity names from our current text+integer system to text only
    - IESW029 to MudLake
  - Improve understanding of complicated entities
    - Examples: IESW029 (Mud Lake) and IESW059 (AFRD2, Richfield and Dietrich)





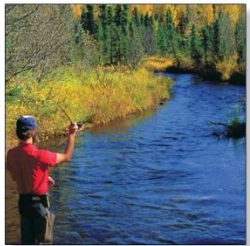
# Potential ESPAM Improvements

- Time varying transmissivity
  - USGS has released MODFLOW-NWT
  - Supposed to be more stable
- Include more METRIC data
- Develop procedure to interpolate between METRIC years
- Extend calibration to include most current data
- Improve calculations for non-irrigated recharge



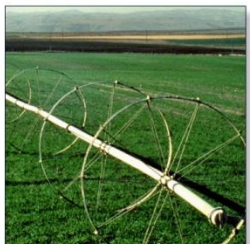
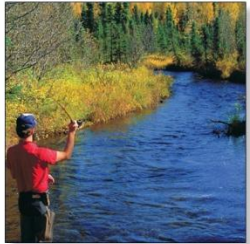
# Potential ESPAM Improvements

- More pilot points
- Incorporate water quality observations
  - Apparent groundwater age
  - Temperature
- Grid refinement
- Improve understanding of source of water on mixed source lands
- Convert Snake River from RIV package to STR package
- Incorporate vadose zone



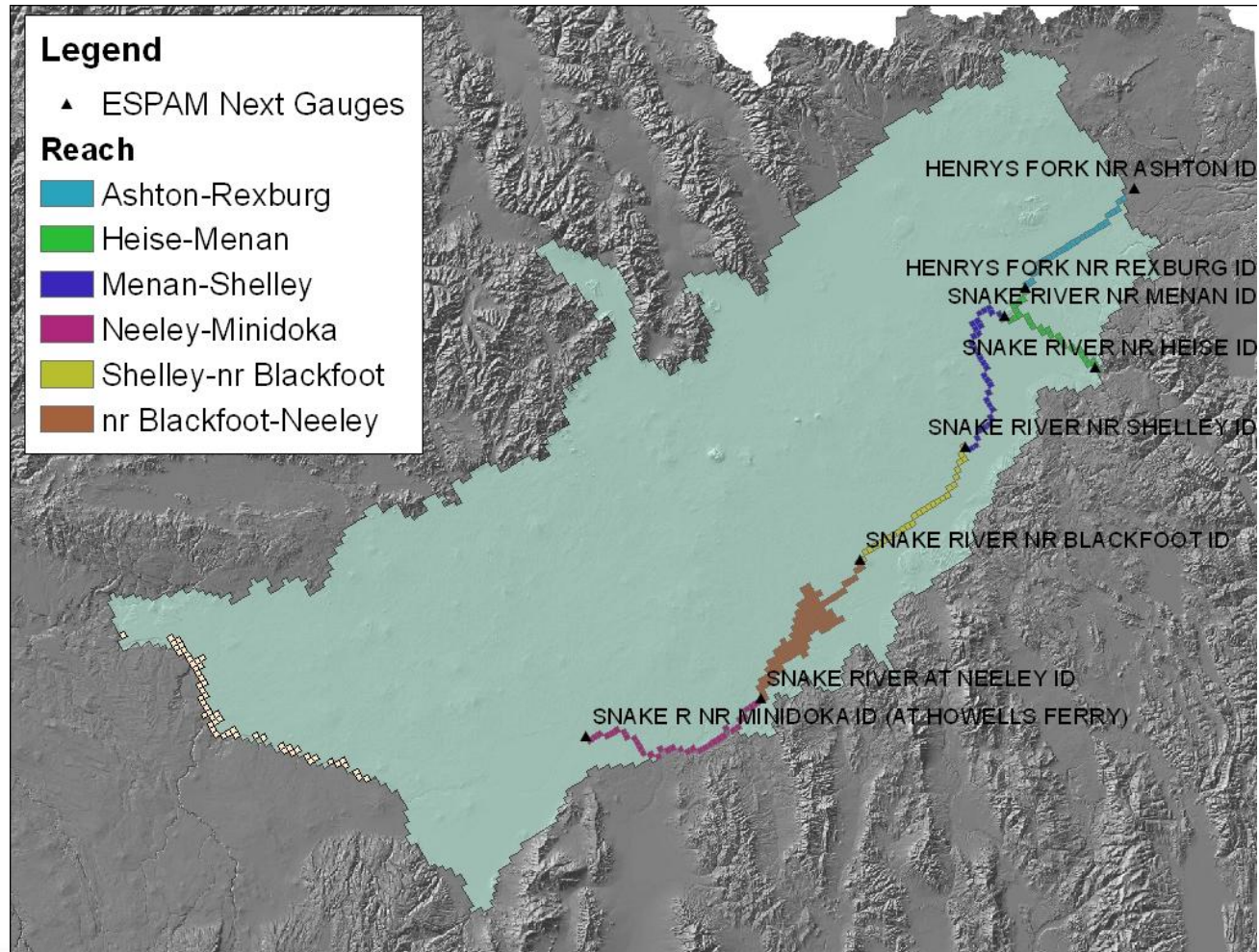
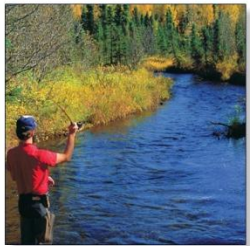
# Potential ESPAM Improvements

- Convert Magic Valley springs to STR package and use drains to represent base flow
- Link groundwater model with a surface water model
- Include two drains for every spring
  - Possibly let upper drain go dry
- Adjust elevation of Briggs Spring
- Review reachgain targets



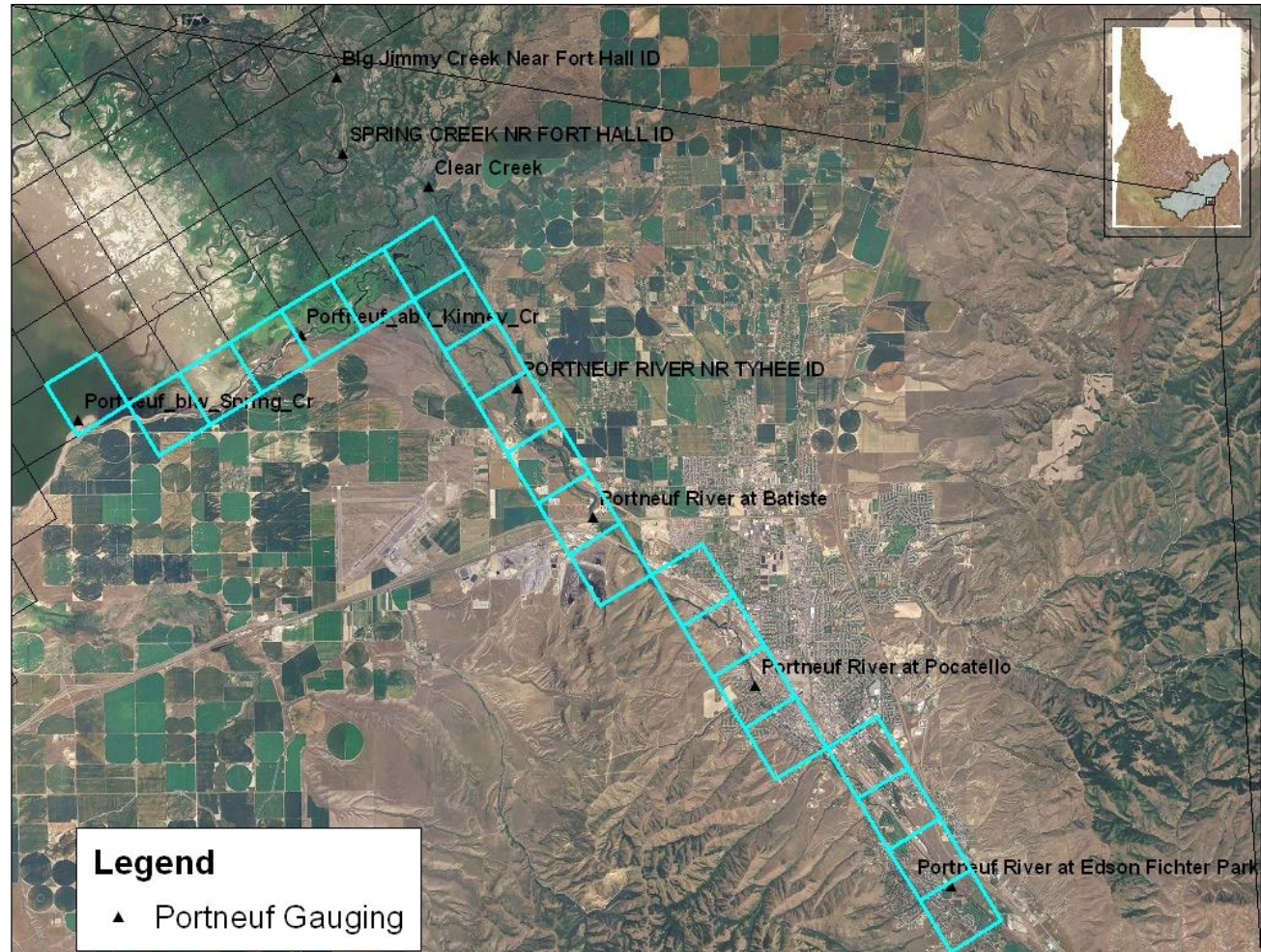
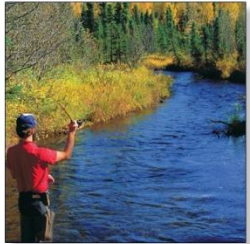


# Include Menan gage 2000- present



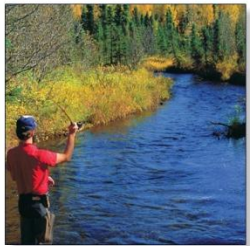


# Include Portneuf River



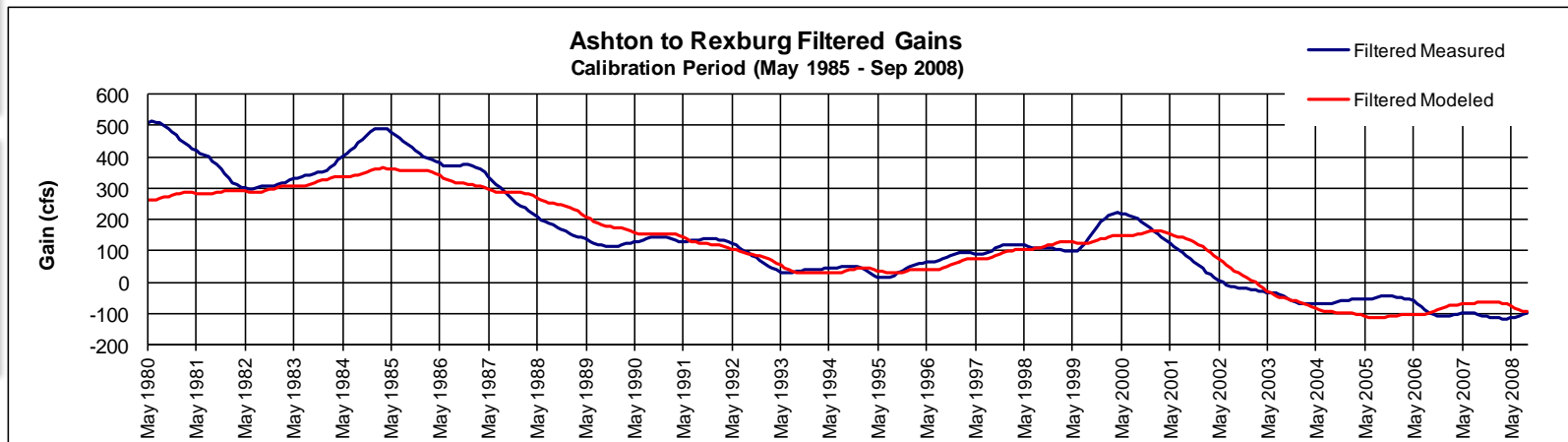
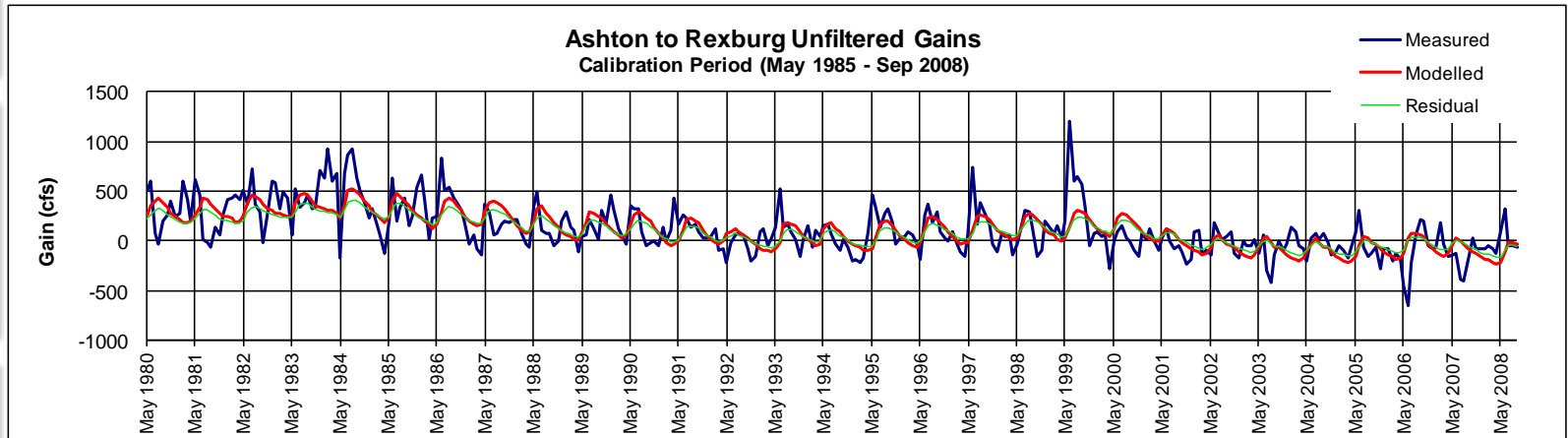
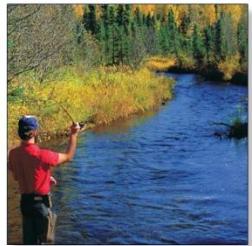
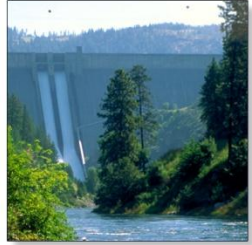


# New spring targets in Ft Hall Bottoms

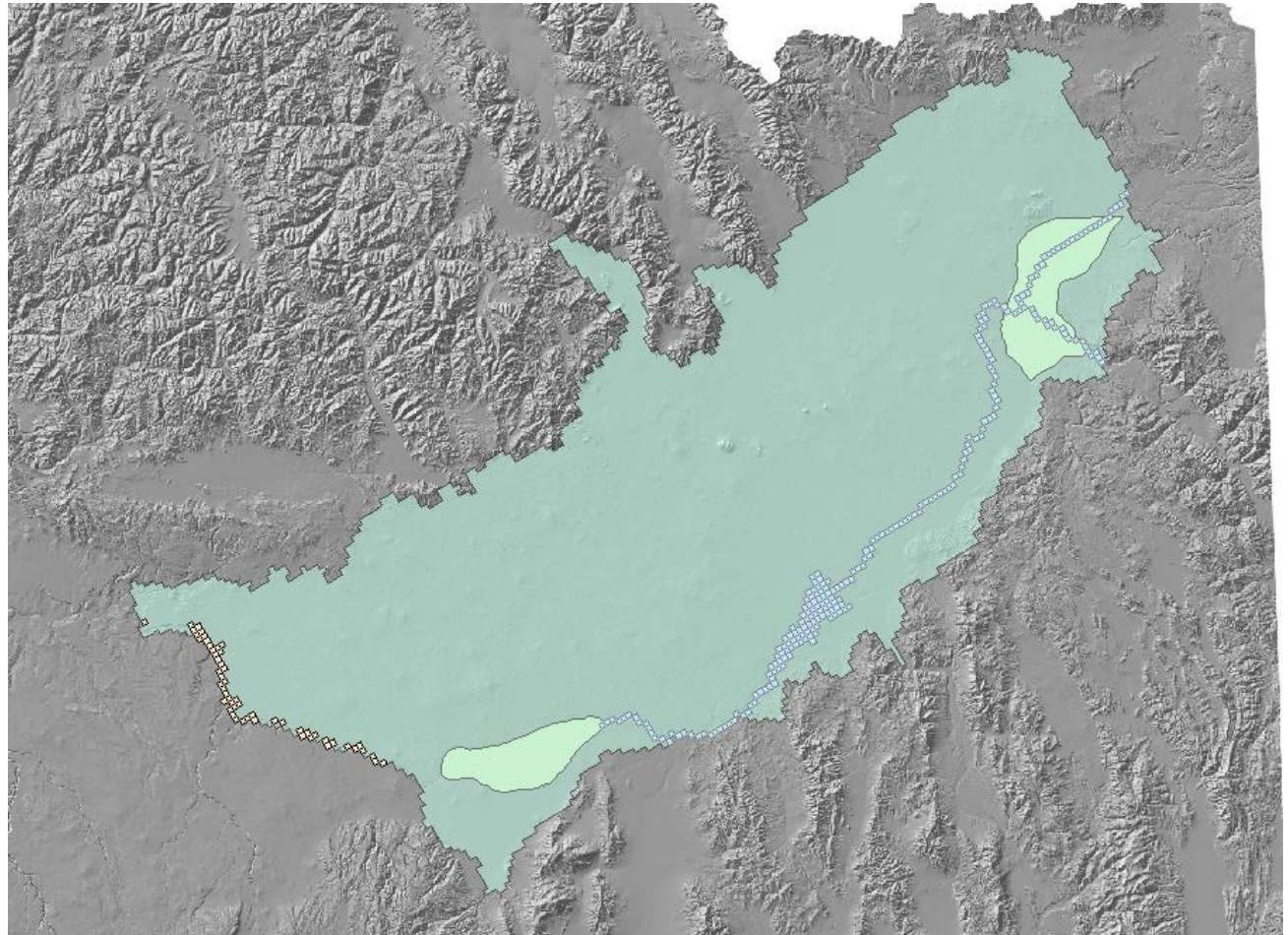
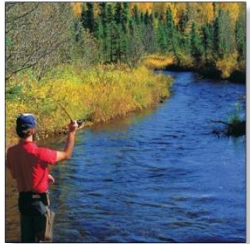
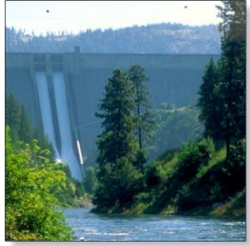




# Include Filtered and Unfiltered Snake River Gains

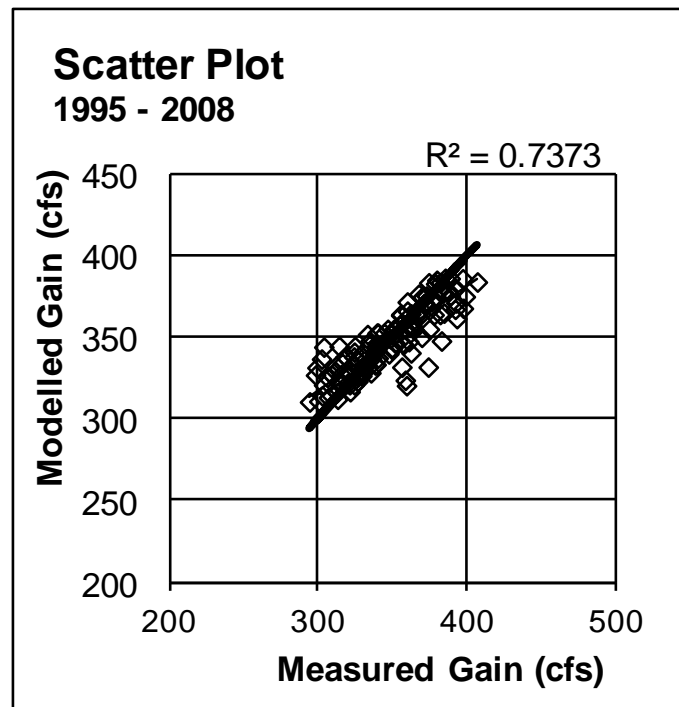
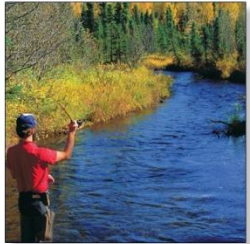


# Consider Multiple Layers in Selected Areas

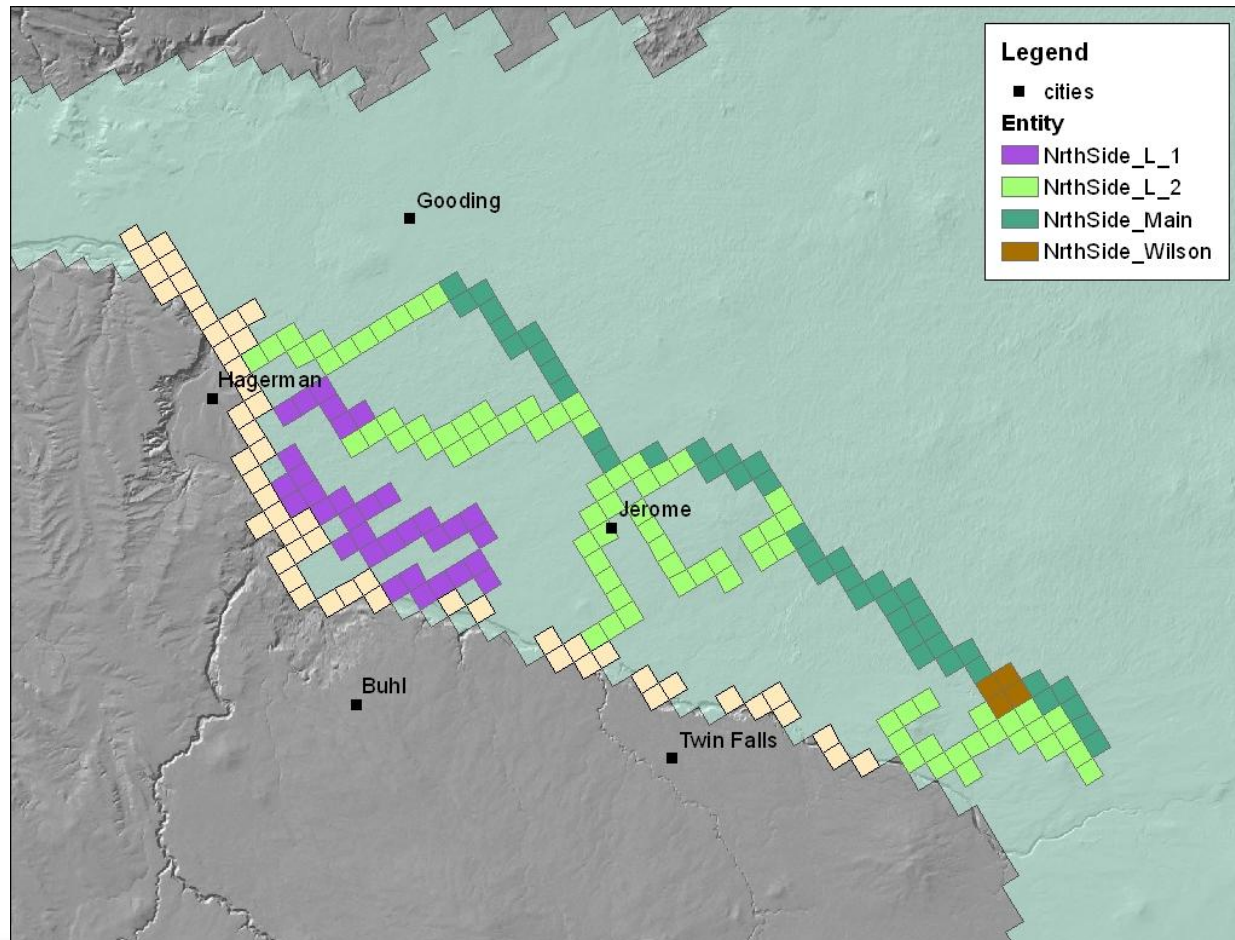
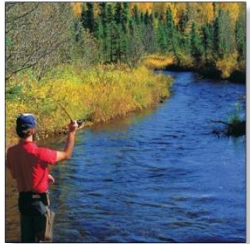
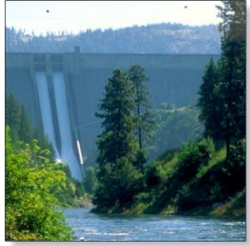




# Include Slope and $R^2$ for Scatter Plot in Calibration Targets

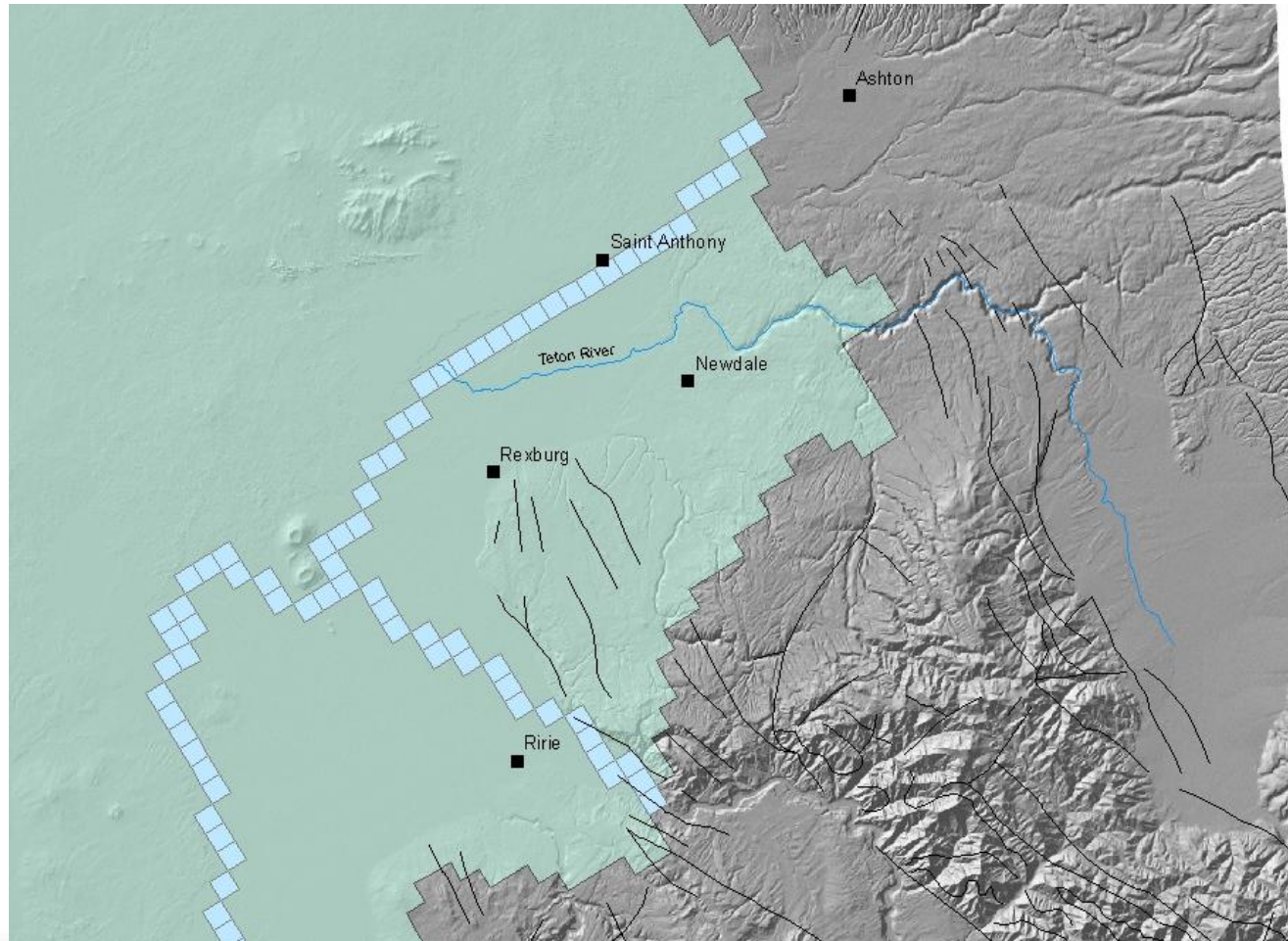
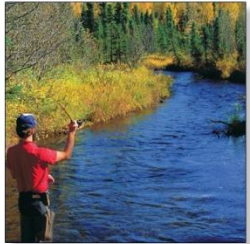


# Adjust Seepage from Northside Canals to Account for Lining



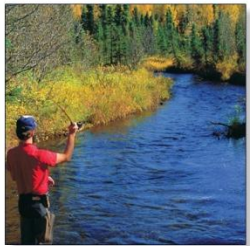


# Include Teton River



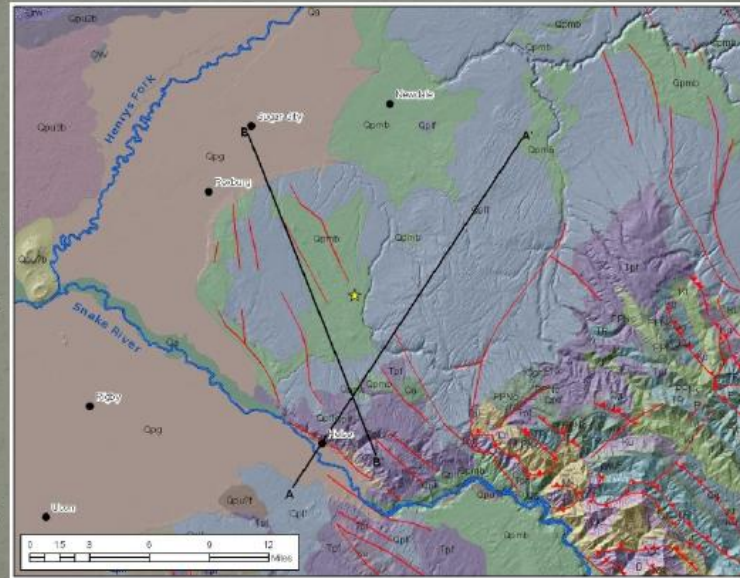


# Include Rexburg Bench Faults



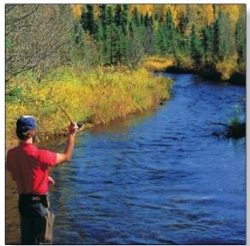
## From Roger Warner, 23 May 2011 Interpretation of Rift Zone

- Northwest trending volcanic rift zone that appears to be a continuation of the Grand Valley Fault
- At least 10 basaltic vents located along the rift zone
- Similar to the rift zones on Snake River Plain, where feeder dikes act as dams to southwestward flow
- Dike system on Bench would behave similarly, directing flow toward Sugar City



Inhibits flow toward the South Fork





# Prioritized List from 2007

